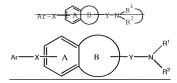
## 1. (CURRENTLY AMENDED) A compound of the formula:



wherein Ar represents an aromatic ring assembly group which may be substituted or a fused aromatic group which may be substituted:

X represents (i) a bond, (ii) -S-, -SO- or -SO $_2$ -, (iii) a  $C_{1-6}$  alkylene,  $C_{2-6}$  alkenylene or  $C_{2-6}$  alkynylene group, each of which may be substituted by 1 to 3 substituents selected from the group consisting of oxo and  $C_{1-6}$  alkyl, (iv) -CO-O- or (v) a group of the formula:

$$-(CH_2)p-X^1-(CH_2)q-$$

-(CH<sub>2</sub>)r-CO-
$$X^1$$
-, -SO<sub>2</sub>-NR<sup>8</sup>- or -(CH<sub>2</sub>)r-SO<sub>2</sub>-NR<sup>8</sup>-

wherein X1 represents O or NR8,

 $R^8$  represents a hydrogen atom, a hydrocarbon group which may be substituted or an acyl, p represents an integer of 0 to 5, q represents an integer of 1 to 5, p+q is an integer of 1 to 5, and r represents an integer of 1 to 4;

Y represents a divalent  $C_{1-6}$  aliphatic hydrocarbon group which may contain an oxygen atom or a sulfur atom and  $\underline{-CH_2-CH_2- \text{ or } -CH_2-}$ , which may be substituted;

 $R^1$  and  $R^2$  each represents a hydrogen atom of a lower  $C_{1:2}$  alkyl which may be substituted, or  $R^1$ -and  $R^2$ -form, taken together with the adjacent nitrogen-atom, a nitrogen-containing heteroevelie ring which may be substituted:

Ring A represents a benzene ring which may be further substituted apart from the group of the formula: -X-Ar wherein each symbol is as defined above; and

Ring B represents a 4-to-8-membered cyclohexane ring which may be further substituted apart from the group of the formula: -Y-NR<sup>1</sup>R<sup>2</sup> wherein each symbol is as defined above:

provided that, when the fused ring to be formed by Ring A and Ring B is an indole ring, the group of the formula: X Ar wherein each symbol is as defined above is substituted on 4, 6 or 7 position of the indole ring, or a salt thereof.

## 2. (CURRENTLY AMENDED) A compound of claim 1, wherein

Ar is (i) an aromatic ring assembly group which is composed of two or three rings selected from the group consisting of a C<sub>6-14</sub> aromatic hydrocarbon, a C<sub>6-14</sub> quinone and a 5- to 14-membered aromatic heterocyclic ring containing 1 to 4 hetero atoms selected from the group consisting of nitrogen, sulfur and oxygen atoms in addition to carbon atoms, which rings are directly bonded to each other via a single bond, and which assembly group may be substituted by 1 to 5 substituents selected from the group consisting of halogen atoms, C<sub>1-3</sub> alkylenedioxy, nitro, cyano, optionally halogenated C1-6 alkyl, optionally halogenated C3-6 cycloalkyl, optionally halogenated  $C_{1-6}$  alkoxy, optionally halogenated  $C_{1-6}$  alkylthio, hydroxy, amino, mono-C1-6 alkylamino, di-C1-6 alkylamino, 5- to 7-membered saturated cyclic amino, formyl, carboxy, carbamoyl,  $C_{1-6}$  alkyl-carbonyl,  $C_{1-6}$  alkoxy-carbonyl,  $C_{6-10}$  aryl-carbonyl,  $C_{6-10}$ aryloxy-carbonyl, C7-16 aralkyloxy-carbonyl, 5- or 6-membered heterocycle carbonyl, mono-C1- $_{6}$  alkyl-carbamoyl, di-C $_{1-6}$  alkyl-carbamoyl, C $_{6-10}$  aryl-carbamoyl, 5- or 6-membered heterocycle carbamoyl, C<sub>1-6</sub> alkylsulfonyl, C<sub>6-10</sub> arylsulfonyl, formylamino, C<sub>1-6</sub> alkylcarboxamido, C<sub>1-6</sub> aryl-carboxamido, C<sub>1-6</sub> alkoxy-carboxamido, C<sub>1-6</sub> alkylsulfonylamino,  $C_{1\text{--}6} \text{ alkyl-carbonyloxy}, C_{6\text{--}10} \text{ aryl-carbonyloxy}, C_{1\text{--}6} \text{ alkoxy-carbonyloxy}, \\ \text{mono-} C_{1\text{--}6} \text{ alkyl-carbonyloxy}, C_{1\text{--}6} \text{ alkoxy-carbonyloxy}, \\ \text{mono-} C_{1\text{--}6} \text{ alkyl-carbonyloxy}, C_{1\text{--}6} \text{ alkoxy-carbonyloxy}, \\ \text{mono-} C_{1\text{--}6} \text{ alkyl-carbonyloxy}, \\ \text{mono-} C_{1\text{--}6} \text{$ carbamoyloxy, di- $C_{1-6}$  alkyl-carbamoyloxy,  $C_{6-10}$  aryl-carbamoyloxy, nicotinoyloxy and  $C_{6-10}$ aryloxy, or

(ii) a fused bi- or tri-cyclic  $C_{10-14}$  aryl or 9- to 14-membered aromatic heterocyclic group containing 1 to 4 hetero atoms selected from the group consisting of nitrogen, oxygen and sulfur atoms in addition to carbon atoms, which group may be substituted by 1 to 5 substituents selected from the group consisting of halogen atoms,  $C_{1-3}$  alkylenedioxy, nitro, cyano, optionally halogenated  $C_{1-6}$  alkyl, optionally halogenated  $C_{3-6}$  cycloalkyl, optionally halogenated  $C_{1-6}$  alkylamino, di- $C_{1-6}$  alkylamino, di- $C_{1-6}$  alkylamino, 5- to 7-membered saturated cyclic amino, formyl, carboxy, carbamoyl,  $C_{1-6}$  alkyl-

carbonyl,  $C_{1-6}$  alkoxy-carbonyl,  $C_{6-10}$  aryl-carbonyl,  $C_{6-10}$  aryloxy-carbonyl,  $C_{7-16}$  aralkyloxy-carbonyl, 5- or 6-membered heterocycle carbonyl, mono- $C_{1-6}$  alkyl-carbamoyl, di-  $C_{1-6}$  alkyl-carbamoyl,  $C_{6-10}$  aryl-carbamoyl, 5- or 6-membered heterocycle carbamoyl,  $C_{1-6}$  alkylsulfonyl,  $C_{6-10}$  arylsulfonyl, formylamino,  $C_{1-6}$  alkyl-carboxamido,  $C_{6-10}$  aryl-carboxamido,  $C_{1-6}$  alkoy-carboxamido,  $C_{1-6}$  alkyl-carbonyloxy,  $C_{6-10}$  aryl-carbonyloxy,  $C_{6-10}$  aryl-carbonyloxy,  $C_{6-10}$  aryl-carbamoyloxy,  $C_{6-10}$ 

R<sup>8</sup> is (a) a hydrogen atom,

(b) a  $C_{1-6}$  alkyl,  $C_{2-6}$  alkenyl,  $C_{2-6}$  alkynyl,  $C_{3-6}$  cycloalkyl being optionally condensed with one benzene ring, C<sub>6-14</sub> aryl or C<sub>7-19</sub> aralkyl group which may be substituted by 1 to 5 substituents selected from the group consisting of (1) halogen atoms, (2) C<sub>1-3</sub> alkylenedioxy, (3) nitro, (4) cyano, (5) optionally halogenated C1-6 alkyl, (6) optionally halogenated C3-6 cycloalkyl, (7) optionally halogenated  $C_{1-6}$  alkoxy, (8) optionally halogenated  $C_{1-6}$  alkylthio, (9) carboxy, carbamoyl,  $C_{1-6}$  alkyl-carbonyl,  $C_{1-6}$  alkoxy-carbonyl,  $C_{6-10}$  aryl-carbonyl,  $C_{6-10}$ aryloxy-carbonyl, C7-16 aralkyloxy-carbonyl, 5- or 6-membered heterocycle carbonyl, mono-C1- $_{6}$  alkyl-carbamoyl, di-C $_{1-6}$  alkyl-carbamoyl, C $_{6-10}$  aryl-carbamoyl, 5- or 6-membered heterocycle carbamoyl,  $C_{1-6}$  alkylsulfonyl or  $C_{6-10}$  arylsulfonyl, (14) formylamino,  $C_{1-6}$  alkylsulfonyl or  $C_{6-10}$  arylsulfonyl, (15) formylamino,  $C_{1-6}$  alkylsulfonyl or  $C_{6-10}$  arylsulfonyl, (16) formylamino,  $C_{1-6}$  alkylsulfonyl or  $C_{1-6}$ carboxamido,  $C_{6-10}$  aryl-carboxamido,  $C_{1-6}$  alkoxy-carboxamido or  $C_{1-6}$  alkylsulfonylamino, (15) C<sub>1-6</sub> alkyl-carbonyloxy, C<sub>6-10</sub> aryl-carbonyloxy, C<sub>1-6</sub> alkoxy-carbonyloxy, mono-C<sub>1-6</sub> alkyl-carbamoyloxy, di-C<sub>1-6</sub> alkyl-carbamoyloxy, C<sub>6-10</sub> aryl-carbamoyloxy or nicotinoyloxy, (16) 5- to 7-membered saturated cyclic amino, (17) sulfo, (18) a phenyl or 5- or 6-membered aromatic heterocyclic group containing 1 to 4 hetero atoms selected from the group consisting of nitrogen, oxygen and sulfur atoms in addition to carbon atoms, each of which may be substituted by 1 to 5 substituents selected from the group consisting of halogen atoms, C<sub>1-3</sub> alkylenedioxy, nitro, cyano, optionally halogenated  $C_{1-6}$  alkyl, optionally halogenated  $C_{3-6}$  cycloalkyl, optionally halogenated  $C_{1-6}$  alkoxy, optionally halogenated  $C_{1-6}$  alkylthio, hydroxy, amino,

mono-C<sub>1-6</sub> alkylamino, di-C<sub>1-6</sub> alkylamino, 5- to 7-membered saturated cyclic amino, formyl, carboxy, carbamoyl,  $C_{1-6}$  alkyl-carbonyl,  $C_{1-6}$  alkoxy-carbonyl,  $C_{6-10}$  aryl-carbonyl,  $C_{6-10}$ aryloxy-carbonyl,  $C_{7-16}$  aralkyloxy-carbonyl, 5- or 6-membered heterocycle carbonyl, mono- $C_{1-1}$  $_{6}$  alkyl-carbamoyl, di-C  $_{1-6}$  alkyl-carbamoyl, C  $_{6-10}$  aryl-carbamoyl, 5- or 6-membered heterocycle carbamoyl, C<sub>1-6</sub> alkylsulfonyl, C<sub>6-10</sub> arylsulfonyl, formylamino, C<sub>1-6</sub> alkylcarboxamido, C<sub>6-10</sub> aryl-carboxamido, C<sub>1-6</sub> alkoxy-carboxamido, C<sub>1-6</sub> alkylsulfonylamino,  $C_{1-6} \text{ alkyl-carbonyloxy}, C_{6-10} \text{ aryl-carbonyloxy}, C_{1-6} \text{ alkoxy-carbonyloxy}, \\ \text{mono-} C_{1-6} \text{ alkyl-carbonyloxy}, C_{1-6} \text{ alkoxy-carbonyloxy}, \\ C_{1-6} \text{ alkyl-carbonyloxy}, C_{1-6} \text{ alkoxy-carbonyloxy}, \\ C_{1-6}$ carbamoyloxy, di-C  $_{1\text{-}6}$  alkyl-carbamoyloxy,  $\mathrm{C}_{6\text{-}10}$  aryl-carbamoyloxy, nicotinoyloxy and  $\mathrm{C}_{6\text{-}10}$ aryloxy, (19) an aromatic ring assembly group which is composed of two or three rings selected from the group consisting of a  $C_{6-14}$  aromatic hydrocarbon, a  $C_{6-14}$  quinone and a 5- to 14membered aromatic heterocyclic ring containing 1 to 4 hetero atoms selected from the group consisting of nitrogen, sulfur and oxygen atoms in addition to carbon atoms, are directly bonded to each other via a single bond, and which group may be substituted by 1 to 5 substituents selected from the group consisting of halogen atoms, C<sub>1-3</sub> alkylenedioxy, nitro, cyano, optionally halogenated  $\mathrm{C}_{1\text{-}6}$  alkyl, optionally halogenated  $\mathrm{C}_{3\text{-}6}$  cycloalkyl, optionally halogenated  $\mathrm{C}_{1\text{-}6}$ alkoxy, optionally halogenated  $C_{1-6}$  alkylthio, hydroxy, amino, mono- $C_{1-6}$  alkylamino, di- $C_{1-6}$ alkylamino, 5- to 7-membered saturated cyclic amino, formyl, carboxy, carbamoyl,  $C_{1-6}$  alkylamino, 5- to 7-membered saturated cyclic amino, formyl, carboxy, carbamoyl,  $C_{1-6}$  alkylamino, 5- to 7-membered saturated cyclic amino, formyl, carboxy, carbamoyl,  $C_{1-6}$  alkylamino, 5- to 7-membered saturated cyclic amino, formyl, carboxy, carbamoyl,  $C_{1-6}$  alkylamino, 5- to 7-membered saturated cyclic amino, formyl, carboxy, carbamoyl,  $C_{1-6}$  alkylamino,  $C_{1-6}$ carbonyl,  $C_{1-6}$  alkoxy-carbonyl,  $C_{6-10}$  aryl-carbonyl,  $C_{6-10}$  aryloxy-carbonyl,  $C_{7-16}$ aralkyloxy-carbonyl, 5- or 6-membered heterocycle carbonyl, mono- $C_{1-6}$  alkyl-carbamoyl, di- $C_{1-6}$  alkyl-carbamoyl,  $C_{6-10}$  aryl-carbamoyl, 5- or 6-membered heterocycle carbamoyl,  $C_{1-6}$ alkylsulfonyl,  $C_{6-10}$  arylsulfonyl, formylamino,  $C_{1-6}$  alkyl-carboxamido,  $C_{6-10}$  aryl- ${\it carboxamido, C_{1\text{-}6} \, alkoxy\text{-}carboxamido, C_{1\text{-}6} \, alkylsulfonylamino, C_{1\text{-}6} \, alkyl\text{-}carbonyloxy, C_{6\text{-}6} \, alkyl\text{-}carbonyloxy$ 10 aryl-carbonyloxy, C<sub>1-6</sub> alkoxy-carbonyloxy, mono-C<sub>1-6</sub> alkyl-carbamoyloxy, di-C<sub>1-6</sub> alkylcarbamoyloxy,  $C_{6-10}$  aryl-carbamoyloxy, nicotinoyloxy and  $C_{6-10}$  aryloxy, and (20) a fused bior tri-cyclic C<sub>10-14</sub> aryl or 9- to 14-membered aromatic heterocyclic group containing 1 to 4 hetero atoms selected from the group consisting of nitrogen, oxygen and sulfur atoms in addition to carbon atoms, which group may be substituted by 1 to 5 substituents selected from the group consisting of halogen atoms,  $C_{1-3}$  alkylenedioxy, nitro, cyano, optionally halogenated  $C_{1-6}$ 

alkyl, optionally halogenated  $C_{3-6}$  cycloalkyl, optionally halogenated  $C_{1-6}$  alkyl, optionally halogenated  $C_{1-6}$  alkylthio, hydroxy, amino, mono- $C_{1-6}$  alkylamino, di- $C_{1-6}$  alkylamino, 5- to 7-membered saturated cyclic amino, formyl, carboxy, carbamoyl,  $C_{1-6}$  alkyl-carbonyl,  $C_{1-6}$  alkoxy-carbonyl,  $C_{6-10}$  aryl-carbonyl,  $C_{6-10}$  aryl-carbamoyl,  $C_{7-16}$  aralkyloxy-carbonyl, 5- or 6-membered heterocycle carbonyl, mono- $C_{1-6}$  alkyl-carbamoyl, di- $C_{1-6}$  alkyl-carbamoyl,  $C_{6-10}$  aryl-carbamoyl, 5- or 6-membered heterocycle carbamoyl,  $C_{1-6}$  alkyl-sarbamoyl,  $C_{6-10}$  aryl-carbamoyl, formylamino,  $C_{1-6}$  alkyl-carbamoylo,  $C_{6-10}$  aryl-carboxamido,  $C_{1-6}$  alkyl-carboxamido,  $C_{1-6}$  alkyl-carbamoyloxy,  $C_{6-10}$  aryl-carbonyloxy,  $C_{1-6}$  alkoxy-carbonyloxy, mono- $C_{1-6}$  alkyl-carbamoyloxy, di- $C_{1-6}$  alkyl-carbamoyloxy,  $C_{6-10}$  aryl-carbamoyloxy, nicotinoyloxy and  $C_{6-10}$  aryloxy, or

(c) formyl, carboxy, carbamoyl,  $C_{1-6}$  alkyl-carbonyl,  $C_{1-6}$  alkoxy-carbonyl,  $C_{6-10}$  aryl-carbonyl,  $C_{6-10}$  aryl-carbonyl,  $C_{6-10}$  aryl-carbonyl,  $C_{6-10}$  aryl-carbamoyl,  $C_{6-10}$  aryl-carbamoyl,  $C_{6-10}$  aryl-carbamoyl,  $C_{6-10}$  aryl-carbamoyl,  $C_{6-10}$  aryl-carbamoyl,  $C_{6-10}$  aryl-carbamoyl,  $C_{1-6}$  alkyl-carbamoyl,  $C_{1-6}$  alkyl-car

Y is a  $\underline{C_{1\cdot2}}$   $C_{1\cdot6}$  alkylene, a  $C_{2\cdot6}$  alkenylene, a  $C_{2\cdot6}$  alkynylene or a group of the formula:

m is an integer of 0 to 4, n is an integer of 1 to 5, and m+n is an integer of 1 to 5;

 $R^1$  and  $R^2$  each is a  $\underline{C_{1\cdot2}}$  hydrogen atom or a  $\underline{C_{1\cdot6}}$  alkyl which may be substituted by 1 to 5 substituents selected from the group consisting of halogen atoms,  $C_{1\cdot3}$  alkylenedioxy, nitro, cyano, optionally halogenated  $C_{1\cdot6}$  alkyl, optionally halogenated  $C_{3\cdot6}$  cycloalkyl, optionally halogenated  $C_{1\cdot6}$  alkoxy, optionally halogenated  $C_{1\cdot6}$  alkylamino, di- $C_{1\cdot6}$  alkylamino, 5- to 7-membered saturated cyclic amino, formyl, carboxy, carbamoyl,  $C_{1\cdot6}$  alkyl-carbonyl,  $C_{1\cdot6}$  alkoxy-carbonyl,  $C_{6\cdot10}$  aryl-carbonyl,  $C_{6\cdot10}$  aryloxy-

carbonyl,  $C_{7-16}$  aralkyloxy-carbonyl, 5- or 6-membered heterocycle carbonyl, mono- $C_{1-6}$  alkyl-carbamoyl,  $C_{1-6}$  alkyl-carbamoyl,  $C_{6-10}$  aryl-carbamoyl, 5- or 6-membered heterocycle carbamoyl,  $C_{1-6}$  alkylsulfonyl,  $C_{6-10}$  arylsulfonyl, formylamino,  $C_{1-6}$  alkyl-carboxamido,  $C_{6-10}$  aryl-carboxamido,  $C_{1-6}$  alkoxy-carboxamido,  $C_{1-6}$  alkylsulfonylamino,  $C_{1-6}$  alkyl-carbonyloxy,  $C_{6-10}$  aryl-carbonyloxy, mono- $C_{1-6}$  alkyl-carbamoyloxy, di- $C_{1-6}$  alkyl-carbamoyloxy,  $C_{6-10}$  aryl-carbamoyloxy, nicotinoyloxy,  $C_{6-10}$  aryloxy and  $C_{6-10}$  aryl  $\Theta$ 

R<sup>4</sup> and R<sup>2</sup> form, taken together with the adjacent nitrogen atom, a 3- to 8-membered nitrogen containing heterocyclic ring having one nitrogen atom and optionally having 1 to 3 hetero atoms selected from the group consisting of nitrogen, oxygen and sulfur atoms in addition to carbon atoms, which ring may be substituted by 1 to 5 substituents selected from the group consisting of (1) halogen atoms, (2) C<sub>1-3</sub> alkylenedioxy, (3) nitro, (4) cyano, (5) optionally halogenated C<sub>1-6</sub> alkyl, (6) optionally halogenated C<sub>3-6</sub> cycloalkyl, (7) optionally halogenated  $C_{1\!-6}\text{-alkoxy}, (8) \text{ optionally halogenated } C_{1\!-6}\text{-alkylthio}, (9) \text{ hydroxy}, (10) \text{ amino}, (11) \text{ mono-} C_{1\!-6}\text{-alkylthio}, (11) \text{ hydroxy}, (12) \text{ amino}, (13) \text{ mono-} C_{1\!-6}\text{-alkylthio}, (13) \text{ hydroxy}, (14) \text{ amino}, (14) \text{ mono-} C_{1\!-6}\text{-alkylthio}, (14) \text{ hydroxy}, (15) \text{ amino}, (16) \text{ hydroxy}, (16) \text{ hy$  $6 \text{ alkylamino, } (12) \text{ di-} C_{1\!-\!6} \text{ alkylamino, } (13) \text{ formyl, } \text{ carboxy, } \text{ carbamoyl, } C_{1\!-\!6} \text{ alkyl-carbonyl, }$  $C_{1-6} - alkoxy - carbonyl, C_{6-10} - aryl - carbonyl, C_{6-10} - aryloxy - carbonyl, C_{7-16} - aralkyloxy - carbonyl, C_{7-16} - aryloxy - carbonyl,$ 5- or 6-membered heterocycle carbonyl, mono- $C_{1-6}$  alkyl-carbamoyl, di- $C_{1-6}$  alkyl-carbamoyl, C<sub>6-10</sub> aryl-carbamoyl, 5- or 6-membered heterocycle carbamoyl, C<sub>1-6</sub> alkylsulfonyl or C<sub>6-10</sub>  $arylsulfonyl, (14)\ formylamino, C_{1-6}\ alkyl\ carboxamido, C_{6-10}\ aryl\ carboxamido, C_{1-6}\ alkoxy-100\ aryl-100\ ar$ earboxamido or C<sub>1-6</sub>-alkylsulfonylamino, (15) C<sub>1-6</sub>-alkyl-carbonyloxy, C<sub>6-10</sub>-aryl-carbonyloxy,  $C_{1-6}\text{-alkoxy-carbonyloxy, mono} \cdot C_{1-6}\text{-alkyl-carbamoyloxy, di} \cdot C_{1-6}\text{-alkyl-carbamoyloxy, } C_{6-10}$ aryl-carbamoyloxy or nicotinoyloxy, (16) 5- to 7-membered saturated cyclic amino, (17) sulfo, (18) a phenyl or 5-or 6-membered aromatic heterocyclic group containing 1 to 4 hetero atoms selected from the group consisting of nitrogen, oxygen and sulfur atoms in addition to carbon atoms, each of which may be substituted by 1 to 5 substituents selected from the group consisting of halogen atoms,  $C_{1-3}$  alkylenedioxy, nitro, cyano, optionally halogenated  $C_{1-6}$  alkyl, optionally halogenated C3.6 cycloalkyl, optionally halogenated C1.6 alkoxy, optionally  $\color{red} \textbf{halogenated} \ C_{\textcolor{red}{1-6}} \ \textbf{alkylthio}, \\ \textbf{hydroxy}, \\ \textbf{amino}, \\ \textbf{mono} \ C_{\textcolor{red}{1-6}} \ \textbf{alkylamino}, \\ \textbf{di} \ C_{\textcolor{red}{1-6}} \ \textbf{alkylamino}, \\ \textbf{5} \ \ \textbf{to} \\ \color{red} \textbf{6} \ \ \textbf{6} \\ \color{red} \textbf{6} \\ \color{red} \textbf{6} \\ \color{red} \textbf{6} \ \ \textbf{6} \\ \color{red} \textbf{6$ 

7-membered saturated cyclic amino, formyl, carboxy, carbamoyl, C<sub>1-6</sub> alkyl carbonyl, C<sub>1-6</sub>  ${\color{blue} \text{alkoxy carbonyl}, C_{6-10} \text{-aryl carbonyl}, C_{6-10} \text{-aryloxy carbonyl}, C_{7-16} \text{-aralkyloxy carbonyl}, 5 - \text{or} \\ {\color{blue} \text{or} \text{carbonyl}, C_{7-16} \text{-aralkyloxy carbonyl}, C_{7-16} \text{-aralkyloxy}} \\ {\color{blue} \text{carbonyl}, C_{7-16} \text{-aralkyloxy}} \\ {\color{blue}$  $\ \, 6 \ \, \text{membered heterocycle carbonyl, mono} \, \, C_{\cline{1-6}} \, \text{alkyl carbamoyl, di} \, \, C_{\cline{1-6}} \, \text{alkyl carbamoyl, C}_{\cline{1-6}} \, \text{on} \, \, \text{on} \,$ aryl-carbamoyl, 5 or 6 membered heterocycle carbamoyl,  $C_{1-6}$  alkylsulfonyl,  $C_{6-10}$  $arylsulfonyl, formylamino, C_{1-6} \\ alkyl \\ carboxamido, C_{6-10} \\ aryl \\ carboxamido, C_{1-6} \\ alkoxylamino, C_{1-6} \\ a$  $carboxamido, C_{1-6}-alkylsulfonylamino, C_{1-6}-alkyl-carbonyloxy, C_{6-10}-aryl-carbonyloxy, C_{1-6}-alkylsulfonylamino, C_{1-6}-alkylsulf$  ${\color{blue} \tt alkoxy\ carbonyloxy,\ mono\ C_{1-6}\ alkyl\ carbamoyloxy,\ di\ C_{1-6}\ alkyl\ carbamoyloxy,\ C_{6-10}\ aryl-1}$ carbamoyloxy, nicotinoyloxy and  $C_{6-10}$  aryloxy, (19) an aromatic ring-assembly group which is composed of two or three rings selected from the class group consisting of a C<sub>6-14</sub> aromatic hydrocarbon, a  $C_{6-14}$  quinone and a 5 to 14 membered aromatic heterocyclic ring containing 1 to 4 hetero atoms selected from the group consisting of nitrogen, sulfur and oxygen atoms in addition to earbon atoms, are directly bonded to each other via a single bond, and which group may be substituted by 1 to 5 substituents selected from the group consisting of halogen atoms,  $C_{1\!-3}\text{-alkylenedioxy, nitro, cyano, optionally halogenated }C_{1\!-6}\text{-alkyl, optionally halogenated }C_{3\!-6}$  $eyeloalkyl, optionally\ halogenated\ C_{\hbox{$1$-6}}-alkoxy, optionally\ halogenated\ C_{\hbox{$1$-6}}-alkylthio, hydroxy,$ amino, mono-C<sub>1-6</sub> alkylamino, di-C<sub>1-6</sub> alkylamino, 5- to 7-membered saturated cyclic amino,  $\textit{formyl, earboxy, earbamoyl, $C_{1-6}$-alkyl-carbonyl, $C_{1-6}$-alkoxy-carbonyl, $C_{6-10}$-aryl-carbonyl, $C_{1-6}$-alkyl-carbonyl, $C_{1-6}$-a$ C<sub>6.10</sub> aryloxy-carbonyl, C<sub>7.16</sub> aralkyloxy-carbonyl, 5- or 6-membered heterocycle carbonyl,  ${\color{blue} {\sf mono-C_{1-6}} \ alkyl-carbamoyl, di-C_{1-6} \ alkyl-carbamoyl, C_{6-10} \ aryl-carbamoyl, 5-or-6-membered}}$  ${\it heterocycle\ carbamoyl, C_{1-6}-alkyl sulfonyl, C_{6-10}-aryl sulfonyl, formylamino, C_{1-6}-alkyl-alkyl-aryl sulfonyl, formylamino, C_{1-6}-alkyl-alkyl-aryl sulfonyl, formylamino, C_{1-6}-alkyl-alkyl-alkyl-aryl sulfonyl, formylamino, C_{1-6}-alkyl-alky$  $carboxamido, C_{1-6} - alkoxy - carboxamido, C_{1-6} - alkoxy - carboxamido, C_{1-6} - alkylsulfonylamino, \\$  $C_{1-6}\text{-alkyl-carbonyloxy}, C_{6-10}\text{-aryl-carbonyloxy}, C_{1-6}\text{-alkoxy-carbonyloxy}, \\ \text{mono-}C_{1-6}\text{-alkyl-carbonyloxy}, C_{1-6}\text{-alkoxy-carbonyloxy}, \\ C_{1-6}\text{-alkyl-carbonyloxy}, C_{1-6}\text{-alkyl-carbonyloxy}, C_{1-6}\text{-alkyl-carbonyloxy}, \\ C_{1-6}\text{-alkyl-carbonyloxy}, C_{1-6}\text{-alkyl-carbonyloxy}, \\ C_{1-6}\text{-alkyl-carbonyloxy}, C_{1-6}\text{-alkyl-carbonyloxy}, \\ C_{1-6}\text{-alkyl-carbonyloxy}, \\$  ${\it earbamoyloxy, di-C_{1-6}} \ {\it alkyl-carbamoyloxy, C_{6-10}} \ {\it aryl-carbamoyloxy, nicotinoyloxy and C_{6-10}}$  $\frac{\text{aryloxy, (20) a fused bi-or tri-cyclic }C_{10-14}\text{-aryl or 9- to 14-membered aromatic heterocyclic}}{\text{10 to 14-membered aromatic heterocyclic}}$ group containing 1 to 4 hetero atoms selected from the group consisting of nitrogen, oxygen and sulfur atoms in addition to carbon atoms, which group may be substituted by 1 to 5 substituents selected from the group consisting of halogen atoms,  $C_{\begin{subarray}{c} -3 \end{subarray}}$  alkylenedioxy, nitro, cyano, optionally halogenated  $C_{1.6}$  alkyl, optionally halogenated  $C_{3.6}$  cycloalkyl, optionally halogenated  $C_{1.6}$  alkoxy, optionally halogenated  $C_{1.6}$  alkylthio, hydroxy, amino, mono  $C_{1.6}$  alkylamino, di  $C_{1.6}$  alkylamino, 5 to 7 membered saturated cyclic amino, formyl, carboxy, carbamoyl,  $C_{1.6}$  alkylearbonyl,  $C_{1.6}$  alkoxy carbonyl,  $C_{6.10}$  aryl carbonyl,  $C_{6.10}$  arylearbonyl,  $C_{6.10}$  arylearboxamido,  $C_{1.6}$  alkylearboxamido,  $C_{1.6}$  alkylearboxamido,  $C_{1.6}$  alkylearboxamido,  $C_{1.6}$  alkylearboxy

Ring A is a benzene ring which may be further substituted by 1 to 3 substituents selected from the group consisting of halogen atoms, optionally halogenated  $C_{1-6}$  alkyl, optionally halogenated  $C_{1-6}$  alkoxy, hydroxy and amino, apart from the group of the formula: -X-Ar wherein each symbol is as defined above; and

Ring B is a 4 to 8 membered ring of the formula:

wherein --- is a single bond or a double bond, and

$$\sum_{z}$$

Z is a C<sub>2</sub> alkylene (i) a bond, (ii) a  $C_{1,4}$  alkylene, (iii) a  $C_{2,4}$  alkenylene, (iv) -0 CH<sub>2</sub> -(v) -0 CH<sub>2</sub> CH<sub>2</sub> or (vi) a group of the formula:  $-NR^{8a}$  CH<sub>2</sub> or  $-NR^{8a}$  CH<sub>2</sub> CH<sub>2</sub> wherein  $R^{8a}$  is (a) a hydrogen atom, (b) a  $C_{1,6}$  alkyl,  $C_{2,6}$  alkenyl,  $C_{2,6}$  alkenyl,  $C_{2,6}$  alkynyl,  $C_{3,6}$  cycloalkyl being optionally condensed with one benzene ring,  $C_{6,14}$  aryl or  $C_{7,19}$  aralkyl group which may be substituted by 1 to 5 substituents selected form the group consisting of (1) halogen atoms, (2)  $C_{1,3}$  alkylenedioxy, (3) nitro, (4) cyano, (5) optionally halogenated  $C_{1,6}$  alkyl, (6) optionally halogenated  $C_{1,6}$  alkylthio, (9)

 $hydroxy, (10) \ amino, (11) \ mono \ C_{\textcolor{red}{L-6}} - alkylamino, (12) \ di \ C_{\textcolor{red}{L-6}} - alkylamino, (13) \ formyl,$  ${\it carboxy, carbamoyl, C_{1-6}-alkyl-carbonyl, C_{1-6}-alkoxy\ carbonyl, C_{6-10}-aryl\ carbon$ aryloxy carbonyl,  $C_{7-16}$  aralkyloxy carbonyl, 5 or 6 membered heterocycle carbonyl, mono  $C_{1-16}$  $_{6}$ -alkyl carbamoyl, di  $C_{1-6}$ -alkyl carbamoyl,  $C_{6-10}$ -aryl carbamoyl, 5- or 6-membered  ${\color{blue} \textbf{heterocycle carbamoyl}, C_{1-6}} {\color{blue} \textbf{alkylsulfonyl or } C_{6-10}} {\color{blue} \textbf{arylsulfonyl}, (14)} {\color{blue} \textbf{formylamino}, C_{1-6}} {\color{blue} \textbf{alkylsulfonyl}, (14)} {\color{blue} \textbf{al$  ${\it carboxamido}, C_{6-10} {\it aryl-carboxamido}, C_{1-6} {\it alkoxy-carboxamido} {\it or} \ C_{1-6} {\it -alkylsulfonylamino},$  $\textbf{(15)} \cdot C_{1\!-\!6} \cdot alkyl \cdot carbonyloxy, C_{6\!-\!10} \cdot aryl \cdot carbonyloxy, C_{1\!-\!6} \cdot alkoxy \cdot carbonyloxy, mono \cdot C_{1\!-\!6} \cdot alkoxy \cdot carbonyloxy, constant and carbonyloxy carbonyl$ alkyl carbamoyloxy, di C<sub>1-6</sub> alkyl carbamoyloxy, C<sub>6-10</sub> aryl carbamoyloxy or nicotinoyloxy, (16) 5-to 7-membered saturated cyclic amino, (17) sulfo, (18) a phenyl or 5-or 6 membered aromatic heterocyclic group containing 1 to 4 hetero atoms selected from the group consisting of nitrogen, oxygen and sulfur atoms in addition to carbon atoms, each of which may be substituted by 1 to 5 substituents selected from the group consisting of halogen atoms, C<sub>1,3</sub> alkylenedioxy, nitro, cyano, optionally halogenated  $C_{1-6}$  alkyl, optionally halogenated  $C_{3-6}$  cycloalkyl,  $optionally\ halogenated\ C_{1\!-\!6}-alkoxy,\ optionally\ halogenated\ C_{1\!-\!6}-alkylthio,\ hydroxy,\ amino,$  $\underline{\mathsf{mono-C}_{1-6}}. \underline{\mathsf{alkylamino}}, \underline{\mathsf{di-C}_{1-6}}. \underline{\mathsf{alkylamino}}, \underline{\mathsf{5-to}}. \underline{\mathsf{7-membered}}. \underline{\mathsf{saturated}}. \underline{\mathsf{cyclic}}. \underline{\mathsf{amino}}, \underline{\mathsf{formyl}}, \underline{\mathsf{mono-C}_{1-6}}. \underline{\mathsf{alkylamino}}, \underline{\mathsf{alkylamino}}, \underline{\mathsf{5-to}}. \underline{\mathsf{7-membered}}. \underline{\mathsf{saturated}}. \underline{\mathsf{cyclic}}. \underline{\mathsf{amino}}, \underline{\mathsf{formyl}}, \underline{\mathsf{alkylamino}}, \underline{\mathsf{5-to}}. \underline{\mathsf{7-membered}}. \underline{\mathsf{saturated}}. \underline{\mathsf{cyclic}}. \underline{\mathsf{amino}}, \underline{\mathsf{formyl}}, \underline{\mathsf{alkylamino}}, \underline{\mathsf{1-6}}. \underline{\mathsf{1-6}$  $earboxy, earbamoyl, C_{1-6}-alkyl-carbonyl, C_{1-6}-alkoxy-carbonyl, C_{6-10}-aryl-carbonyl, C_{6-10$  $\underline{\text{aryloxy-earbonyl}, C_{7-16} \text{ aralkyloxy-earbonyl}, 5-\text{ or } 6-\text{membered heterocycle earbonyl}, \underline{\text{mono-}C_{1-1}}$ 6 alkyl-carbamoyl, di-C<sub>1-6</sub> alkyl-carbamoyl, C<sub>6-10</sub> aryl-carbamoyl, 5- or 6-membered  ${\it heterocycle-carbamoyl}, C_{1-6} - alkyl sulfonyl, C_{6-10} - aryl sulfonyl, formylamino, C_{1-6} - alkyl-aryl sulfonyl, formylamino, C_{1-6} - alkyl$  $earboxamido, C_{1-10} - aryl-earboxamido, C_{1-6} - alkoxy-carboxamido, C_{1-6} - alkylsulfonylamino,\\$  $C_{1-6}\text{-alkyl-carbonyloxy}, C_{6-10}\text{-aryl-carbonyloxy}, C_{1-6}\text{-alkoxy-carbonyloxy}, \\ \text{mono-}C_{1-6}\text{-alkyl-carbonyloxy}, C_{1-6}\text{-alkoxy-carbonyloxy}, \\ C_{1-6}\text{-alkyl-carbonyloxy}, C_{1-6}\text{-alkoxy-carbonyloxy}, \\ C_{1-6}\text{-alkyl-carbonyloxy}, C_{1-6}\text{-alkoxy-carbonyloxy}, \\ C_{1-6}\text{-alkyl-carbonyloxy}, C_{1-6}\text{-alkoxy-carbonyloxy}, \\ C_{1-6}\text{-alkyl-carbonyloxy}, \\ C_{1-6}\text{-alkyl-carbonyloxy$  ${\it carbamoyloxy, di-C_{1-6}-alkyl-carbamoyloxy, C_{6-10}-aryl-carbamoyloxy, nicotinoyloxy and C_{6-10}-aryl-carbamoyloxy, nicotinoyloxy, nicotinoy$ aryloxy, (19) an aromatic ring-assembly group which is composed of two or three rings selected from the class consisting of a  $C_{6-14}$  aromatic hydrocarbon, a  $C_{6-14}$  quinone and a 5- to 14membered aromatic heterocyclic ring containing 1 to 4 hetero atoms selected from the group consisting of nitrogen, sulfur and oxygen atoms in addition to carbon atoms, are directly bonded to each other via a single bond, and which group may be substituted by 1 to 5 substituents selected from the group consisting of halogen atoms, C<sub>1-3</sub> alkylenedioxy, nitro, cyano, optionally  ${\it halogenated} \ C_{1-6} - {\it alkyl}, \ optionally \ {\it halogenated} \ C_{3-6} - {\it cycloalkyl}, \ optionally \ {\it halogenated} \ C_{1-6} - {\it alkyl}, \ {\it h$  $alkoxy, optionally \ halogenated \ C_{1\!-\!6} - alkylthio, \ hydroxy, \ amino, \ mono \ C_{1\!-\!6} - alkylamino, \ di \ C_{1$  $alkylamino, 5 \ \ \, to \ \, 7 \ \, membered \ \, saturated \ \, cyclic \ \, amino, formyl, carboxy, carbamoyl, C_{1-6} \ \, alkylamino, formyl, carboxy, carbamoyl, carboxy, carbamoyl, car$ earbonyl,  $C_{1-6}$  alkoxy carbonyl,  $C_{6-10}$  aryl carbonyl,  $C_{6-10}$  aryloxy carbonyl,  $C_{7-16}$  $aralkyloxy\ carbonyl,\ 5\ \ or\ 6\ membered\ heterocycle\ carbonyl,\ mono\ C_{1-6}\ alkyl\ carbamoyl,\ diversity and the carbonyl of the car$  $C_{1-6}$ -alkyl carbamoyl,  $C_{6-10}$  aryl carbamoyl, 5 or 6 membered heterocycle carbamoyl,  $C_{1-6}$  ${\color{blue} \text{alkylsulfonyl}, C_{6-10} \text{ arylsulfonyl}, formylamino, C_{1-6} \text{ alkyl carboxamido, C}_{6-10} \text{ arylsulfonyl}, formylamino, C}_{6-10} \text{ arylsulfonyl}, formyl$  $carboxamido, C_{\underbrace{\hspace{-0.1cm} -6}} - alkoxy \cdot carboxamido, C_{\underbrace{\hspace{-0.1cm} -6}} - alkylsulfonylamino, C_{\underbrace{\hspace{-0.1cm} -6}} - alkyl \cdot carbonyloxy, C_{\underbrace{\hspace{-0.1cm} -6}} - alkylsulfonylamino, C_{\underbrace{\hspace{-0.1c$ 10 aryl-carbonyloxy, C<sub>1-6</sub>-alkoxy carbonyloxy, mono C<sub>1-6</sub>-alkyl-carbamoyloxy, di C<sub>1-6</sub>-alkyl $earbamoyloxy, C_{6-10} \ aryl \ earbamoyloxy, nicotinoyloxy \ and \ C_{6-10} \ aryloxy, \ and \ (20) \ a \ fused \ bi-10 \ aryloxy, \ and \ (20) \ a \ aryloxy, \ an$ or tri-cyclic C<sub>10-14</sub> aryl or 9 to 14 membered aromatic heterocyclic group containing 1 to 4 hetero atoms selected from the group consisting of nitrogen, oxygen and sulfur atoms in addition to earbon atoms, which group may be substituted by 1 to 5 substituents selected from the group consisting of halogen atoms,  $C_{1-3}$  alkylenedioxy, nitro, cyano, optionally halogenated  $C_{1-6}$ alkyl, optionally halogenated  $C_{3-6}$  cycloalkyl, optionally halogenated  $C_{4-6}$  alkoxy, optionally  $\color{red} \color{blue} \textbf{halogenated} \, \color{blue} \textbf{C}_{\textcolor{red}{1\!\!-\!6}} \textbf{-alkylthio}, \textbf{hydroxy, amino, mono} \, \color{blue} \textbf{C}_{\textcolor{red}{1\!\!-\!6}} \textbf{-alkylamino, di} \, \color{blue} \textbf{C}_{\textcolor{red}{1\!\!-\!6}} \textbf{-alkylamino, 5-to}$ 7 membered saturated cyclic amino, formyl, carboxy, carbamoyl, C1\_6-alkyl carbonyl, C1\_6  $alkoxy\ carbonyl,\ C_{6-10}\ aryl\ carbonyl,\ C_{6-10}\ aryloxy\ carbonyl,\ C_{7-16}\ aralkyloxy\ carbonyl,\ 5\ \ or$  $\ \, 6 \ \, \text{membered heterocycle carbonyl, mono} \, \, C_{1\!-\!6} \, \, \text{alkyl carbamoyl, di} \, \, C_{1\!-\!6} \, \, \text{alkyl carbamoyl, C}_{6\!-\!10}$ aryl-carbamoyl, 5-or 6 membered heterocycle carbamoyl,  $C_{1-6}$ -alkylsulfonyl,  $C_{6-10}$  $arylsulfonyl, formylamino, C_{1\!-6} - alkyl - carboxamido, C_{6\!-10} - aryl - carboxamido, C_{1\!-6} - alkoxy$  $carboxamido, C_{1-6} \ alkylsulfonylamino, C_{1-6} \ alkyl \ carbonyloxy, C_{6-10} \ aryl \ carbonyloxy, C_{1-6} \ alkylsulfonylamino, C_{1-6} \ alkylsulf$ alkoxy carbonyloxy, mono  $C_{1-6}$  alkyl carbamoyloxy, di  $C_{1-6}$  alkyl carbamoyloxy,  $C_{6-10}$  aryl carbamoyloxy, nicotinoyloxy and  $C_{6-10}$  aryloxy, or  $\textbf{(c) formyl, carboxy, carbamoyl, } C_{1-6}\textbf{-alkyl carbonyl, } C_{1-6}\textbf{-alkoxy carbonyl, } C_{6-10}\textbf{-aryl carbonyl, } C_{1-6}\textbf{-alkyl carbonyl, } C_{1-6}\textbf{-alkoxy carbonyl, } C_{1-6}\textbf{-alkyl ca$ 

 $C_{6-10}$  aryloxy carbonyl,  $C_{7-16}$  aralkyloxy carbonyl, 5 or 6 membered heterocycle carbonyl,

 $\label{eq:continuous} \mbox{mono $C_{\mbox{$L$}-6}$ alkyl carbamoyl, $d$ is $C_{\mbox{$L$}-6}$ alkyl carbamoyl, $C_{\mbox{$L$}-10}$ aryl carbamoyl, $5$ or $6$ membered heterocycle-carbamoyl, $C_{\mbox{$L$}-6}$ alkylsulfonyl or $C_{\mbox{$L$}-10}$ arylsulfonyl, $$$ 

which ring may be further substituted by 1 to 3 substituents selected from the group consisting of oxo,  $C_{1-6}$  alkyl and hydroxy, apart from the group of the formula: -Y-NR<sup>1</sup>R<sup>2</sup> wherein each symbol is as defined above.

- (ORIGINAL) A compound of claim 1, wherein Ar is an aromatic ring assembly group which may be substituted.
- 4. (ORIGINAL) A compound of claim 3, wherein the aromatic rings of the aromatic ring assembly group are two or three aromatic rings selected from the group consisting of benzene, thiophene, pyridine, pyrimidine, 1,2,4-oxadiazole, 1,3,4-oxadiazole, naphthalene and benzofuran.
- (ORIGINAL) A compound of claim 3, wherein the aromatic ring assembly group is 2-, 3or 4-biphenylyl.
- 6. (ORIGINAL) A compound of claim 1, wherein Ar is a 4-biphenylyl which may be substituted by 1 to 3 substituents selected from the group consisting of halogen atoms,  $C_{1-3}$  alkylenedioxy, nitro, cyano, optionally halogenated  $C_{1-6}$  alkyl, optionally halogenated  $C_{3-6}$  cycloalkyl, optionally halogenated  $C_{1-6}$  alkylamino, di- $C_{1-6}$  alkylamino, 5- to 7-membered saturated cyclic amino, formyl, carboxy, carbamoyl,  $C_{1-6}$  alkyl-carbonyl,  $C_{1-6}$  alkoxy-carbonyl,  $C_{6-10}$  aryl-carbonyl,  $C_{6-10}$  aryl-carbonyl,  $C_{1-6}$  alkyl-carbamoyl,  $C_{1-6}$  alkyl-carbamoyl, formylamino,  $C_{1-6}$  alkyl-carboxamido,  $C_{1-6}$  alkyl-carboxamido,  $C_{1-6}$  alkyl-carboxoxyl,  $C_{1-6}$  alkyl-carbamoyloxy,  $C_{1-6}$  alkyl-carbamoyloxy,  $C_{1-6}$  alkyl-carbamoyloxy, mono- $C_{1-6}$  alkyl-carbamoyloxy,  $C_{1-6}$  alkyl-carbamoyloxy, mono- $C_{1-6}$  alkyl-carbamoyloxy, di- $C_{1-6}$  alkyl-carbamoyloxy,  $C_{6-10}$  aryl-carbamoyloxy, nicotinoyloxy and  $C_{6-10}$  aryloxy.
- (ORIGINAL) A compound of claim 1, wherein X is a divalent C<sub>1-6</sub> aliphatic hydrocarbon group which may contain an oxygen atom.
- (ORIGINAL) A compound of claim 1, wherein X is a C<sub>1-6</sub> alkylene.
- 9. 12. (CANCELED)

- 13. (ORIGINAL) A compound of claim 1, wherein  $X^1$  is a group of the formula:  $-SO_2-NR^8$ -wherein each symbol has the same meaning as in claim 1.
- 14. (ORIGINAL) A compound of claim 13, wherein  $\mathbb{R}^8$  is hydrogen.

15. - 17. (CANCELED)

- 18. (ORIGINAL) A compound of claim 1, wherein Ring A is a benzene ring substituted by the group of the formula: -X-Ar wherein each symbol has the same meaning as in claim 1.
- (CURRENTLY AMENDED) A compound of claim 1, wherein Ring B is a 4-to 8membered ring of the formula:



wherein Z is a C2 alkylene (i) a bond, (ii) a C1 4 alkylene, (iii) a C2 4 alkenylene, (iv) -O CH2-,

(v) O CH2-CH2- or (vi) a group of the formula:  $NR^{8a}$ -CH2- or  $NR^{8a}$ -CH2- CH2wherein R<sup>8a</sup> is (a) a hydrogen atom. (b) a C1\_6-alkyl, C2\_6-alkenyl, C2\_6-alkynyl, C2\_6-cycloalkyl being optionally condensed with one benzene ring, C<sub>6-14</sub> aryl or C<sub>7-10</sub> aralkyl group which may be substituted by 1 to 5 substituents selected form the group consisting of (1) halogen atoms, (2) C<sub>1-2</sub>-alkylenedioxy, (3) nitro, (4) cyano, (5) optionally halogenated C1-6 alkyl, (6) optionally halogenated C3-6  $eyeloalkyl, (7) \ optionally \ halogenated \ C_{1-6} - alkoxy, (8) \ optionally \ halogenated \ C_{1-6} - alkylthio, (9)$ hydroxy, (10) amino, (11) mono C<sub>1-6</sub> alkylamino, (12) di C<sub>1-6</sub> alkylamino, (13) formyl,  $carboxy, carbamoyl, C_{1-6} alkyl \ carbonyl, C_{1-6} alkoxy \ carbonyl, C_{6-10} \ aryl \ carbonyl, C_{6-10} \$ aryloxy carbonyl, C7-16-aralkyloxy carbonyl, 5 or 6 membered heterocycle carbonyl, mono C1-6 alkyl carbamoyl, di C1-6 alkyl carbamoyl, C6-10 aryl carbamoyl, 5 or 6 membered  $heterocycle\ carbamoyl,\ C_{1-6}\ alkyl sulfonyl\ or\ C_{6-10}\ aryl sulfonyl,\ (14)\ formylamino,\ C_{1-6}\ alkyl-100\ formylamino,\ C_{1-6$  $carboxamido, C_{1-6} - alkoxy - carboxamido - or C_{1-6} - alkylsulfonylamino, \\$ (15)  $C_{1-6}$  alkyl carbonyloxy,  $C_{6-10}$  aryl carbonyloxy,  $C_{1-6}$  alkoxy carbonyloxy, mono  $C_{1-6}$ alkyl carbamoyloxy, di  $C_{1-6}$  alkyl carbamoyloxy,  $C_{6-10}$  aryl carbamoyloxy or nicotinoyloxy, (16) 5 to 7 membered saturated cyclic amino, (17) sulfo, (18) a phenyl or 5 or 6 membered

aromatic heterocyclic group containing 1 to 4 hetero atoms selected from the group consisting of nitrogen, oxygen and sulfur atoms in addition to carbon atoms, each of which may be substituted by 1 to 5 substituents selected from the group consisting of halogen atoms, C<sub>1-3</sub> alkylenedioxy, nitro, cyano, optionally halogenated  $C_{1-6}$  alkyl, optionally halogenated  $C_{3-6}$  cycloalkyl, optionally halogenated  $C_{1-6}$ -alkoxy, optionally halogenated  $C_{1-6}$ -alkylthio, hydroxy, amino, mono C<sub>1-6</sub> alkylamino, di C<sub>1-6</sub> alkylamino, 5 to 7 membered saturated cyclic amino, formyl,  $carboxy, carbamoyl, C_{1-6} - alkyl - carbonyl, C_{1-6} - alkoxy - carbonyl, C_{6-10} - aryl - carbonyl, C_{6-10$ aryloxy carbonyl, C7-16 aralkyloxy carbonyl, 5- or 6 membered heterocycle carbonyl, mono C1- $_{6}$ -alkyl carbamoyl, di  $C_{1-6}$ -alkyl carbamoyl,  $C_{6-10}$  aryl carbamoyl, 5 or 6 membered  $heterocycle\ carbamoyl,\ C_{1-6}\ alkylsulfonyl,\ C_{6-10}\ arylsulfonyl,\ formylamino,\ C_{1-6}\ alkylsulfonyl,\ formylamino,\ C_{1$  $carboxamido, C_{1-6} - alkoxy - carboxamido, C_{1-6} - alkoxy - carboxamido, C_{1-6} - alkylsulfonylamino, carboxamido, carboxamido, C_{1-6} - alkylsulfonylamino, carboxamido, carboxa$ C1\_6-alkyl-carbonyloxy, C6\_10-aryl-carbonyloxy, C1\_6-alkoxy-carbonyloxy, mono-C1\_6-alkyl- ${\it carbamoyloxy, di} \cdot C_{1-6} \cdot alkyl \cdot carbamoyloxy, C_{6-10} \cdot aryl \cdot carbamoyloxy, \, nicotinoyloxy \, and \, C_{6-10} \cdot aryl \cdot carbamoyloxy, \, nicotinoyloxy \, and \, C_{6-10} \cdot aryl \cdot carbamoyloxy, \, nicotinoyloxy \, and \, C_{6-10} \cdot aryl \cdot carbamoyloxy, \, nicotinoyloxy \, and \, C_{6-10} \cdot aryl \cdot carbamoyloxy, \, nicotinoyloxy \, and \, C_{6-10} \cdot aryl \cdot carbamoyloxy, \, nicotinoyloxy \, and \, C_{6-10} \cdot aryl \cdot carbamoyloxy, \, nicotinoyloxy \, and \, C_{6-10} \cdot aryl \cdot carbamoyloxy, \, nicotinoyloxy \, and \, C_{6-10} \cdot aryl \cdot carbamoyloxy, \, nicotinoyloxy \, and \, C_{6-10} \cdot aryl \cdot carbamoyloxy, \, nicotinoyloxy \, and \, C_{6-10} \cdot aryl \cdot carbamoyloxy, \, nicotinoyloxy \, and \, C_{6-10} \cdot aryl \cdot carbamoyloxy, \, nicotinoyloxy \, and \, C_{6-10} \cdot aryl \cdot carbamoyloxy, \, nicotinoyloxy \, and \, C_{6-10} \cdot aryl \cdot carbamoyloxy, \, nicotinoyloxy \, and \, C_{6-10} \cdot aryl \cdot carbamoyloxy, \, nicotinoyloxy \, and \, C_{6-10} \cdot aryl \cdot carbamoyloxy, \, nicotinoyloxy \, and \, C_{6-10} \cdot aryl \cdot carbamoyloxy, \, nicotinoyloxy \, and \, C_{6-10} \cdot aryl \cdot carbamoyloxy, \, nicotinoyloxy \, and \, C_{6-10} \cdot aryl \cdot carbamoyloxy, \, nicotinoyloxy \, aryl \,$ aryloxy, (19) an aromatic ring-assembly group which is composed of two or three rings selected from the class consisting of a C<sub>6-14</sub> aromatic hydrocarbon, a C<sub>6-14</sub> quinone and a 5- to 14membered aromatic heterocyclic ring containing 1 to 4 hetero atoms selected from the group consisting of nitrogen, sulfur and oxygen atoms in addition to carbon atoms, are directly bonded to each other via a single bond, and which group may be substituted by 1 to 5 substituents  $selected \ from \ the \ group \ consisting \ of \ halogen \ atoms, C_{\cline{1-3}} \ alkylenedioxy, \ nitro, \ eyano, \ optionally$ halogenated  $C_{1-6}$ -alkyl, optionally halogenated  $C_{3-6}$ -cycloalkyl, optionally halogenated  $C_{1-6}$ alkoxy, optionally halogenated C<sub>1-6</sub>-alkylthio, hydroxy, amino, mono C<sub>1-6</sub>-alkylamino, di C<sub>1-6</sub> alkylamino, 5 to 7 membered saturated cyclic amino, formyl, carboxy, carbamoyl, C<sub>1-6</sub>-alkyl- ${\it carbonyl}, C_{1\!-\!6} {\it -alkoxy - carbonyl}, C_{6\!-\!10} {\it -aryl - carbonyl}, C_{6\!-\!10} {\it -aryloxy - carbonyl}, C_{7\!-\!16} {\it -aryl$  $aralkyloxy\ carbonyl,\ 5\ \ or\ 6\ membered\ heterocycle\ carbonyl,\ mono\ C_{1-6}\ alkyl\ carbamoyl,\ displays aralkyloxy\ carbonyl,\ displays aralkyloxy\ di$  $C_{1-6}$ -alkyl carbamoyl,  $C_{6-10}$  aryl carbamoyl, 5 or 6 membered heterocycle carbamoyl,  $C_{1-6}$  ${\color{blue} \text{alkylsulfonyl, } C_{6-10} \text{ arylsulfonyl, formylamino, } C_{1-6} \text{ alkyl carboxamido, } C_{6-10} \text{ arylsulfonyl, formylamino, } C_{1-6} \text{ alkyl carboxamido, } C_{6-10} \text{ arylsulfonyl, } C_{6-10} \text{ arylsulfon$  $carboxamido, C_{1\!-\!6}\text{-}alkoxy\text{-}carboxamido, C_{1\!-\!6}\text{-}alkylsulfonylamino, } C_{1\!-\!6}\text{-}alkyl\text{-}carbonyloxy, } C_{6\!-\!6}\text{-}alkylsulfonylamino, } C_{1\!-\!6}\text{-}alkyl\text{-}carbonyloxy, } C_{6\!-\!6}\text{-}alkyl\text{-}carbonyloxy, } C_{6\!-\!6}\text{-}alkyl\text{-}alkyl\text{-}carbonyloxy, } C_{6\!-\!6}\text{-}alkyl\text$ +0 aryl carbonyloxy,  $C_{1-6}$  alkoxy carbonyloxy, mono  $C_{1-6}$  alkyl carbamoyloxy, di  $C_{1-6}$  alkyl

earbamoyloxy,  $C_{6-10}$  aryl carbamoyloxy, nicotinoyloxy and  $C_{6-10}$  aryloxy, and (20) a fused bior tri cyclic  $C_{10-14}$  aryl or 9- to 14 membered aromatic heterocyclic group containing 1 to 4 hetero atoms selected from the group consisting of nitrogen, oxygen and sulfur atoms in addition to carbon atoms, which group may be substituted by 1 to 5 substituents selected from the group consisting of halogen atoms,  $C_{1-2}$  alkylenedioxy, nitro, cyano, optionally halogenated  $C_{1-6}$  alkyl, optionally halogenated  $C_{3-6}$  cycloalkyl, optionally halogenated  $C_{1-6}$  alkylthio, hydroxy, amino, mono  $C_{1-6}$  alkylamino, di  $C_{1-6}$  alkylamino, 5- to 7 membered saturated cyclic amino, formyl, carboxy, carbamoyl,  $C_{1-6}$  alkyl-carbonyl,  $C_{1-6}$  alkoxy carbonyl,  $C_{6-10}$  aryl carbonyl, aryl carbonyl, carbonyl, carbamoyl, di  $C_{1-6}$  alkyl-carbamoyl,  $C_{6-10}$  aryl carbamoyl,  $C_{6-10}$  aryl carbamoyl,  $C_{6-10}$  aryl carbamoyl,  $C_{6-10}$  aryl carbamoyl, formylamino,  $C_{1-6}$  alkyl carbamoyl,  $C_{6-10}$  aryl carbonylamino,  $C_{1-6}$  alkyl carbamoyloxy,  $C_{6-10}$  aryl carbonyloxy,  $C_{6-10}$ 

(e) formyl, earboxy, earbamoyl,  $C_{1-6}$  alkyl carbonyl,  $C_{1-6}$  alkoxy carbonyl,  $C_{6-10}$  aryl carbonyl,  $C_{6-10}$  aryl carbonyl,  $C_{6-10}$  aryl carbonyl,  $C_{7-16}$  aralkyloxy carbonyl,  $C_{6-10}$  aryl carbamoyl,  $C_{6-10}$  aryl carbamoyl  $C_{6-10}$  aryl carbamoyl  $C_{6-10}$  aryl carbamoyl  $C_{6-10}$  aryl c

which ring may be further substituted by 1 to 3 substituents selected from the group consisting of oxo,  $C_{1-6}$  alkyl and hydroxy, apart from the group of the formula: -Y-NR  $^1$ R $^2$  wherein each symbol has the same meaning as in claim 1.

20. - 24. (CANCELED)

25. (CURRENTLY AMENDED) A compound of claim 1, wherein

Ar is 2-, 3- or 4-biphenylyl which may be substituted by 1 to 3 substituents selected from the group consisting of halogen atoms,  $C_{1-3}$  alkylenedioxy, nitro, cyano, optionally halogenated  $C_{1-6}$  alkyl, optionally halogenated  $C_{1-6}$  alkyl, optionally halogenated  $C_{1-6}$  alkylamino, di- $C_{1-6}$  alkylamino, formyl and  $C_{1-6}$  alkyl-carboxamido;

X is C<sub>1-3</sub> alkylene which may contain an oxygen atom;

Y is 
$$C_{1-2} \leftarrow_{1-6}$$
 alkylene;

$$R^1$$
 and  $R^2$  each is  $\underline{C}_{1-2} \underbrace{C}_{1-6}$  alkyl;

Ring A is a benzene ring substituted by the group of the formula: -X-Ar wherein each symbol has the same meaning as in claim 1; and

Ring B is a <u>cyclohexane</u> 6-membered carbocyclic or heterocyclic ring substituted by the group of the formula: -Y-NR $^1$ R $^2$  wherein each symbol has the same meaning as in claim 1. 26. (CANCELED)

 (CURRENTLY AMENDED) A compound of claim 1, which is a compound of the formula:

$$Ax^{a}-X'-\underbrace{\left(\begin{array}{c} X'-X'-N'\\ R^2\end{array}\right)}$$

wherein  $\operatorname{Ar}^a$  is (i) 2, 3- or 4-biphenylyl which may be substituted by 1 to 3 substituents selected from the group consisting of halogen atoms,  $C_{1-3}$  alkylenedioxy, nitro, cyano, optionally halogenated  $C_{1-6}$  alkyl, optionally halogenated  $C_{1-6}$  alkoxy, optionally halogenated  $C_{1-6}$  alkylthio, amino, formyl and  $C_{1-6}$  alkyl-carboxamido, (ii) 4-(2-thienyl)phenyl or 4-(3-thienyl)phenyl, (iii) 4-(3-pyridyl)phenyl, (iv) 6-phenyl-3-pyridyl which may be substituted by a  $C_{1-6}$  alkoxy, (v) 5-phenyl-1,3,4-oxadiazol-2-yl, (vi) 4-(2-naphthyl)phenyl, (vii) 4-(2-benzofuranyl)phenyl, (viii) 1- or 2-naphthyl, (ix) 2-quinolyl, (x) 2-benzothiazolyl or (xi) 2-benzofuranyl;

X' is -CH2-O , -SO2-NH- or a group of the formula:

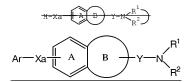
-CH<sub>2</sub>-NR<sup>8'</sup>-wherein R<sup>8'</sup> is hydrogen or C<sub>1-3</sub> alkyl-carbonyl;

Z' is -CH2-CH2- or a group of the formula:

 $-NR^{8''}-CH_2-\ \ wherein\ R^{8''}\ is\ hydrogen,\ C_{1\!-3}\ alkyl,\ C_{1\!-3}\ alkyl-\ carbonyl\ or\ C_{1\!-3}\ alkylsulfonyl;$  and

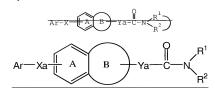
 $R^{1'}$  and  $R^{2'}$  each is  $\underline{C_{1-2}}$   $C_{1-6}$  alkyl which may be substituted by 1 to 5 substituents selected from the group consisting of di- $C_{1-3}$  alkylamino,  $C_{1-3}$  alkoxy-carbonyl and phenyl, or  $R^{1'}$  and  $R^{2'}$  form, taken together with the adjacent nitrogen atom, a pyrrolidin 1-yl, piperidino or piperazin 1-yl which may be substituted by 1 to 3 substituents selected from the group consisting of hydroxy,  $C_{1-3}$  alkoxy-carbonyl, piperidino, phenyl and benzyl, or a salt thereof.

- 28. (CANCELED)
- (CURRENTLY AMENDED) A process for producing of a compound of claim 1, which comprises;
- i) subjecting a compound of the formula:



wherein Xa represents an oxygen atom, a sulfur atom which may be oxidized or a group of the formula:  $NR^8$  wherein  $R^8$  represents a hydrogen atom, a hydrocarbon group which may be substituted or an acyl; and the other symbols have the same meanings as in claim 1, or a salt thereof, to alkylation or acylation and optionally followed by aryl-coupling of the resultant compound:

ii) subjecting a compound of the formula;

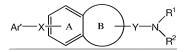


wherein Ya represents a group to be formed by removing a methylene from Y; and the other symbols have the same meanings as in claim 1, or a salt thereof, to reduction; or iii) subjecting a compound of the formula:

wherein L represents a leaving group; and the other symbols have the same meanings as in claim 1, to amination.

- 30. (Withdrawn)
- (Previously Presented) A pharmaceutical composition which comprises a compound of claim 1 and a pharmaceutically acceptable carrier, excipient or diluent.
- 32. (ORIGINAL) A pharmaceutical composition of claim 31 which is an inhibitor for production and/or secretion of amyloid- $\beta$  protein.
- (ORIGINAL) A pharmaceutical composition of claim 31 which is for preventing and/or treating neurodegenerative diseases caused by amyloid-B protein.
- (ORIGINAL) A pharmaceutical composition of claim 32, wherein the neurodegenerative disease caused by amyloid-β protein is Alzheimer's disease.
- 35. (Withdrawn, Re-Presented) A method of inhibiting production and/or secretion of amyloid-β protein in mammal, which comprises administering to said mammal an effective amount of a compound of claim 1 or a pharmaceutically acceptable salt thereof with a pharmaceutically acceptable excipient, carrier or diluent.
- 36. (Previously Presented) A method for manufacturing a pharmaceutical composition for inhibiting production and/or secretion of amyloid-β protein comprising combining a compound of claim 1 with a pharmaceutically acceptable carrier, excipient or diluent.
- (Currently Amended) An inhibitor for production and/or secretion of amyloid-β protein, which comprises a compound of the formula:





wherein Ar' represents an aromatic group which may be substituted;

X represents (i) a bond, (ii) -S-, -SO- or -SO $_2$ -, (iii) a  $C_{1-6}$  alkylene,  $C_{2-6}$  alkenylene or  $C_{2-6}$  alkynylene group, each of which may be substituted by 1 to 3 substituents selected from the group consisting of oxo and  $C_{1-6}$  alkyl, (iv) -CO-O- or (v) a group of the formula:

wherein X1 represents O or NR8,

 $R^8$  represents a hydrogen atom, a hydrocarbon group which may be substituted or an acyl, p represents an integer of 0 to 5, q represents an integer of 1 to 5, p+q is an integer of 1 to 5, and r represents an integer of 1 to 4:

Y represents <u>-CH<sub>2</sub>-CH<sub>2</sub>- or -CH<sub>2</sub>-</u> a divident C<sub>L-G</sub> aliphatic hydrocarbon group which may eontain an oxygen atom or a sulfur atom and , which may be substituted;

 $R^1$  and  $R^2$  each represents a  $\underline{C_{1\cdot 2}}$  hydrogen atom or a lower alkyl which may be substituted, or  $R^1$ -and  $R^2$ -form, taken-together with the adjacent nitrogen atom, a nitrogen-containing heterocyclic ring which may be substituted;

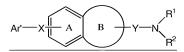
Ring A represents a benzene ring which may be further substituted apart from the group of the formula: -X-Ar wherein each symbol is as defined above: and

Ring B represents a <u>cyclohexane\_4- to 8-membered</u> ring which may be further substituted apart from the group of the formula: -Y-NR<sup>1</sup>R<sup>2</sup> wherein each symbol is as defined above, or a salt thereof.

38. (Withdrawn)

 (Withdrawn, Currently Amended, Re-Presented) A method for making a pharmaceutical formulation for inhibiting production and/or secretion of amyloid-β protein comprising combining a compound of the formula:





wherein Ar' represents an aromatic group which may be substituted;

X represents (i) a bond, (ii) -S-, -SO- or -SO<sub>2</sub>-, (iii) a  $C_{1-6}$  alkylene,  $C_{2-6}$  alkenylene or  $C_{2-6}$  alkynylene group, each of which may be substituted by 1 to 3 substituents selected from the group consisting of oxo and  $C_{1-6}$  alkyl, (iv) -CO-O- or (v) a group of the formula:

 $R^8$  represents a hydrogen atom, a hydrocarbon group which may be substituted or an acyl, p represents an integer of 0 to 5, q represents an integer of 1 to 5, p+q is an integer of 1 to 5, and r represents an integer of 1 to 4;

Y represents <u>-CH<sub>2</sub>-CH<sub>2</sub>- or -CH<sub>2</sub>- a divalent C<sub>L-6</sub>-aliphatic hydrocarbon group</u> which may contain an oxygen atom or a sulfur atom and may be substituted;

 $\mathbb{R}^1$  and  $\mathbb{R}^2$  each represents a  $\mathbb{C}_{4-2}$  hydrogen atom or a lower alkyl which may be substituted, or  $\mathbb{R}^4$  and  $\mathbb{R}^2$  form, taken together with the adjacent nitrogen atom, a nitrogen containing heterocyclic rine which may be substituted:

Ring A represents a benzene ring which may be further substituted apart from the group of the formula: -X-Ar wherein each symbol is as defined above; and

Ring B represents a <u>cyclohexane</u> 4- to 8-membered ring which may be further substituted apart from the group of the formula: -Y-NR<sup>1</sup>R<sup>2</sup> wherein each symbol is as defined above, or a salt thereof for with a pharmaceutically acceptable carrier, excipient or diluent.